

Engineering Ethics: The Basics

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Engineering Ethics

Overview of Session

1. Discussion of Ethical Obligations
2. Engineering Ethics: You be the Judge
3. Other Ethics Exercises

Engineering Ethics

- *“Among the universal ethical values are honesty, integrity, promise-keeping, fidelity, fairness, respect for others, responsible citizenship, pursuit of excellence and accountability.”*
 - Michael Josephson

Engineering Ethics

- **Black and White Areas – Easy**
 - Right vs. Wrong
- **Gray Areas – Tougher**
 - Right vs. Right
 - Lesser of the Evils/Dilemma
- **Other Factors**
 - Time/Money
 - Family
 - Career
 - Reputation

Engineering Ethics

- Professional Maturity
- Emotional Intelligence
- Learning to Be Comfortable with Ambiguity
- Path to Clarity?
- More than One Answer to the Same Question
- Sometimes One Answer is Not Entirely Correct

Engineering Ethics

- Data
- Information
- Facts
- Knowledge
- Expertise
- Wisdom

Engineering Ethics

- **Why Study Engineering Ethics?**
 - To Understand the Standards Governing What is Acceptable Behavior in the Practice of Engineering
- **Why Practice Engineering Ethically?**
 - Personal Injury/Property Damage
 - Disciplinary Action
 - Impact on Reputation, Employer, Clients, Profession
 - Possible Loss of Job, Business, etc.

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- *“All products of technology present some potential dangers, and thus engineering is an inherently risky activity...Engineering should be viewed as an experimental process. It is not, of course, an experiment conducted solely in a laboratory under controlled conditions. Rather, it is an experiment on a social scale involving human subjects”*
 - Martin and Schinziger, Ethics in Engineering

Engineering Ethics

- **Engineering Ethics:**
 - Among the Most Important Issues Facing the U.S. Engineering Profession - NAE
 - Public Perceptions
 - Recent Honesty and Ethics Poll – Good News !!!
 - Engineers considered among the most ethical professionals after nurses (82%), pharmacists (66%), and physicians (65%)
 - 62% believe engineers very high or high honesty and ethical standards.

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■ Professional Codes of Ethics

- A code of professional ethics results when a field organizes itself into a profession. The resulting code is central to advising those professionals how to conduct themselves, to judge their conduct and to understand the profession.

Engineering Ethics

- Hierarchy of Ethical Obligations
- Primary: Ethical Obligations to the Public
- Secondary: Ethical Obligations to Employer or Client
- Tertiary: Ethical Obligations to Other Professionals and Other Parties

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- Three Basic Ethical Obligations – (1) Public, (2) Employer/Client and (3) Other Professionals...
 - Never Mutually Exclusive - Reciprocal
 - Not A “Zero Sum Game”
 - All Need To Be Considered At All Times
 - Should Be Complementary to Integrated With One Another To The Fullest Extent Possible
 - Ethical Integration – Professional Integrity

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- Seven Principles Impacting Each Obligation
 1. Protecting The Public Health, Safety and Welfare
 2. Demonstrating Professional Competence
 3. Maintaining Objectivity/Truthfulness
 4. Addressing Conflict of Interest
 5. Preserving Confidentiality
 6. Receiving and Providing Valuable Consideration
 7. Emerging Areas/Emerging Challenges

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1. Protecting The Public Health, Safety and Welfare

- Conformance with Applicable Standards
- Approval/Signing and Sealing of Engineering Drawings
- Responsible Charge/Responsible Control
- Judgment Overruled
- Awareness of Safety Violations
- Awareness of Illegal Practice

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2. Demonstrating Professional Competence

- Education, Experience, Qualifications
- Acceptance of Assignment
- Signing and Sealing of Work
- Coordination of Work
- Scope of Practice

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3. Maintaining Objectivity/Truthfulness/Non-Deception

- Inclusion of All Relevant Information
- Issuance of Public Statements
- Disclosure to Interested Parties
- Expression of Technical Opinions
- Reviewing Work of Another
- Sales and Marketing Practice

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4. Addressing Conflicts of Interest

- Faithful Agent and Trustee
- Avoid vs. Disclosure
- “Appearances”
- Acceptance of Compensation from More Than One Party
- Serving on Public Bodies
- Accepting Contracts from Government Bodies
- Part-Time Engineering Work
- Contingent Fee Arrangements
- Representing Adversary Interests
- Consent

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5. Preserving Confidentiality

- Business or Technical Affairs of Employers/Clients
- Proprietary Information/Files
- Arranging for New Employment or Business Opportunities
- Consent

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6. Receiving and Providing Gifts and Other Valuable Consideration

- Accepting Consideration from Suppliers for Specifying Product
- Accepting Commissions/Allowances Directly from Contractors
- Political Contributions
- Bribery

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7. Emerging Areas/Emerging Challenges

- Technology
 - Use of Internet and Electronic Practice
- Sustainable Design/Development
 - Environmental Considerations
- Alternative Project Delivery
 - Integrated Project Delivery
 - Building Information Modeling
 - Design/Build

Engineering Ethics

ISO 26000

Social Responsibility

- In 2010 the International Standards Organization published “**Guidance for Social Responsibility**”
- This document is not a “standard, but a voluntary framework to aid organizations in moving closer to socially responsible behavior

Engineering Ethics

ISO 26000

Social Responsibility

- Seven Principles of Social Responsibility
 - (1) Accountability, (2) Transparency, (3) Ethical Behavior, (4) Respect for Law, (5) Respect for Stakeholder's Interests, (6) Respect for Human Rights and (7) Respect for International Norms of Behavior

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ISO 26000

Social Responsibility

- Seven Core Subjects of Social Responsibility
 - (1) Labor Practices, (2) Human Rights, (3) Organizational Governance, (4) Fair Operating Practices (5) Consumer Issues, (6) The Environment and (7) Community Involvement and Development

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- *“The social responsibility of business is to increase profit within the bounds of the law which is to say, engage in open and free competition, without deception or fraud...”*
– **Milton Friedman**

Engineering Ethics

- “I am the captain of my fate...I am the master of my soul.....”
– **Nelson Mandela**

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- “Be sure you put your feet in the right place, then stand firm.....”
 - **Abraham Lincoln**

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- *“The reputation of a thousand years may be determined by the conduct of one hour”*
 - **Japanese proverb**

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- *“Good people do not need laws to tell them to act responsibly, while bad people will find a way around the laws...”*
— **Plato**

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- *“Always do the right thing –this will gratify some and astonish the rest...”*
 - **Mark Twain**

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- *“A long habit of not thinking a thing wrong gives it a superficial appearance of being right...”*
— **Thomas Paine**

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- *“Sweat saves blood, blood saves lives and brains save both...”*
–**General George Patton**

Engineering Ethics

- *“The brain may devise laws of the blood, but a hot temper leaps o'er a cold decree...”*
 - **Portia in "Merchant of Venice"**
(William Shakespeare)

Engineering Ethics

- *“Life is about not knowing...delicious ambiguity...”*

Gilda Radner

Engineering Ethics

“In so many aspects of life, you need to be a long-term optimist, but a short term realist. You need to know what you know and what you don’t know... We need to try to do the right thing every time because we never know what moment in our lives we will be judged on...”

- Captain Chesley Sullenburger

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Questions & Answers

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